

Montana Dam Safety Outlet

Vol. No. 1 *Dam Safety Program Dept. of Natural Resources & Conservation* March 1996

WELCOME!

Welcome to our first issue of the *Montana Dam Safety Outlet*! This newsletter will be published twice a year (once in the winter and again in the summer). The success of the newsletter will depend on your participation and feedback. We encourage you to submit suggestions and articles of interest. This initial issue will be sent to all who, to our knowledge, have an interest in dams. Please tell us of others who would like to receive a regular copy.

We hope this newsletter serves as a useful tool in disseminating information. Please give us your input!

Dam Safety Workshop in Lewistown this May *"Dam Monitoring with Piezometers"*

This year, we have decided to deviate from our typical conference format of the past few years, in exchange for a more "hands-on" learning experience. As many of you are aware, we have been encouraging all dam owners to begin to monitor seepage through their dams. Piezometers, or pressure monitoring wells, can provide valuable information on dam seepage. Piezometers often indicate that a problem is developing long before there is any evidence on the surface. Contrary to what you might think, piezometers can be installed very cost-effectively. Although piezometers are generally very simple devices, it is important that they are installed correctly and in the right location. It is equally important that the data are collected and interpreted properly. Therefore, this year's workshop will deal exclusively with the proper installation and interpretation of piezometers.

David Jones, P.E., of D. J. Engineering, retired from the Soil Conservation Service, will be teaching this workshop. David has extensive experience in all aspects of dam design, construction and monitoring. The workshop will be one and one-half days in length and will consist of both lecture/discussion and field demonstration. In the field demonstration, we will actually install piezometers in a dam using a wide variety of equipment including 3 types of augers.

The course is intended for dam owners, engineers, students, and anyone else who is interested in dams and/or piezometers. The workshop will be held in Lewistown this year, at the Yogo Inn, on May 7-8, 1996. Registration forms will be sent out in March, along with additional information. If you have any questions please call Michele Lemieux of the Dam Safety Program at (406) 444-6613. You can also send E-mail to: lemieux@flathead.dnrc.mt.gov. Don't miss this great learning experience!

Calender of Events

Date	Event	Contact
April 11-12, 1996	Association of State Dam Safety Officials (ASDSO) Western Regional Technical Seminar, "Earthquake engineering for Dams" Sacramento, California	ASDSO (606) 247-5140
April 15-16, 1996	Association of State Dam Safety Officials (ASDSO) Western Regional Conference, Lake Tahoe, California	ASDSO (606) 247-5140
May 7-8, 1996	Montana Dam Safety Technical Workshop, Dam Seepage Monitoring with Piezometers, Lewistown, Montana	Michele Lermieux, DNRC (406) 444-6613
September 8-11, 1996	Association of State Dam Safety Officials (ASDSO) 1996 Annual Conference, Seattle, Washington	ASDSO (606) 247-5140

Emergency Action Plan Updates

Owners of high hazard dams are required to update their emergency action plans (EAP) annually. These are answers to some of the common questions we receive regarding EAP updates.

Q. *What is involved with an EAP update?*

A. There are four things you need to do to update your EAP.

1. Review your emergency call down lists. Are there any corrections? Do you have a new Disaster and Emergency Services (DES) coordinator or sheriff? Has anyone's number changed?
2. Note any corrections on your copy. You can simply scratch out incorrect names and numbers and handwrite corrections.
3. Photocopy the pages which you made corrections.
4. Mail the corrected pages to your local DES coordinator, your local sheriff, and the Dam Safety Program. *It's that simple!*

Q. *Nothing has changed since the last time I updated my EAP! What do I do in that case?*

A. If nothing has changed, simply write to your DES coordinator explaining a) that you reviewed the emergency action plan for your dam as required by the Dam Safety Program and b) that every thing is current. Send a copy of this letter to your local sheriff and the Dam Safety Program.

Q. *We have had the same sheriff and DES coordinator for the last five years! Why do I have to do this every year?*

A. There are actually three purposes for the annual update: 1) to make corrections, 2) to remind everyone of the purpose of the EAP, and 3) to make sure they know where it is located! We have run exercises in the past simulating a dam emergency, and you would be surprised how many people do not know where the EAP is filed away! In an emergency, time lost while a dispatcher is looking for the EAP might mean lives!

If you have any other questions not addressed here, by all means give us a call! Thanks!

Spillway Requirements for High Hazard Dams in Montana

As a result of the Teton Dam failure and other dam failures in the United States, the Army Corps of Engineers contracted in the late 1970's with local engineers to conduct inspections of those dams having substantial property and lives downstream. Numerous dams in Montana were judged unsafe because the spillways did not meet the Corps spillway guidelines.

Minimum design standards for spillway capacities were then adopted in 1989 in Montana based on Corps guidelines. However, recent studies revealed that spillway capacities equal to the Corps standard of a probable maximum flood would be exceeded annually at a frequency of one in a million to one in 100 million. When the standard was adopted we did not realize the conservative nature of the standard. We now know that it is extremely expensive to build a spillway to pass this design flow.

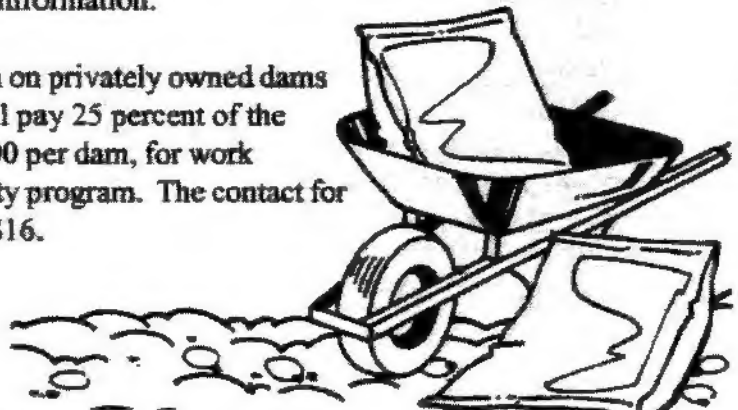
A more realistic spillway standard would likely be one based on risk to downstream inhabitants. In order for this standard to work two things must be done: 1) select an appropriate level of risk; and 2) compute the storm of a frequency equal to the selected risk. The acceptable risk level is selected based on the number of downstream inhabitants that would be flooded should the dam fail. The storm frequency equal to the selected risk can be determined using methods developed by the USGS.

The Dam Safety Program is currently working on developing new spillway standards based on risk. We will keep you apprised of our progress in future news letters and public meetings

Water Development Grant and Loan Deadline

The deadline for submitting applications for public water development grants and loans is May 15, 1996. These funds are for publicly owned works, including dams. Applications may be obtained from the Resource Development Bureau, DNRC, P.O. Box 201601, Helena, MT 59620-1601. Contact John Tubbs at (406) 444-6687 for more information.

Grants for engineer inspections and construction on privately owned dams are still available from DNRC. These funds will pay 25 percent of the cost of inspections and construction, up to \$5,000 per dam, for work needed to meet the requirements of the dam safety program. The contact for this program is Laurence Siroky at (406) 444-6816.



DID YOU KNOW...

Of the 10,000 dams in Montana, there are 3,500 dams (that we know of) that hold 50 acre-feet or greater! Of these 3,500 dams:

80	were built before 1910
3,426	are of earth construction
2,676	are privately owned

Permitting Status

The deadline for submitting operation permit applications for high hazard dams was July 1, 1995. Prior to that date, only 37 of the 89 DNRC-regulated dams had been permitted. Just prior to the July 1st deadline, the remaining 52 dams submitted their applications. At this time, 81 dams have been permitted. The remaining 8 are still in the process of being reviewed, but it appears that all will be permitted soon. Permits are issued for no more than five years. To renew a permit, a high hazard dam owner must review and update the dam's emergency action, operation, and maintenance procedures and have an inspection conducted by a professional engineer. Nearly all operation permits issued by the DNRC have conditions which must be met prior to renewal. Remember to review your permit and plan for any work which needs to be accomplished prior to the expiration date. Please call the Dam Safety staff if you have any questions about your permit!

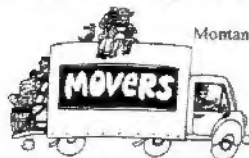
Dam Repair Activities

The following are on going, planned, or recently completed construction activities on DNRC regulated dams:

<u>County</u>	<u>Dam</u>	<u>Owner</u>	<u>Type of Repair</u>	<u>Construction Date</u>
Big Horn	Tongue	DNRC	Spillway replacement	1997
Blaine	Dry Fork	Darrel Bries	Spillway enlargement	April 1996
Fallon	Lower Baker	Fallon Co.	Spillway replacement	September 1996
Jefferson	Delmo	Pipestone Water Users	Toe berm, seepage drain	April 1996
Lincoln	Glen Lake	Glen Lake Irr. Dist.	Spillway installation	April 1996
Meagher	Jackson	Ron Jackson	Spillway enlargement	April 1996
Missoula	Longpre	Gerhard Von der Ruhr	Outlet pipe repair	March 1996
Petroleum	Petrolia	DNRC	Spillway enlargement	July 1996
Richland	Vaux #1 & #2	Lone Tree Ranch	Dam reduction	December 1995
Silver Bow	Moulton	Butte-Silver Bow	Seepage liner instn.	April 1996
Sweet Grass	Upper Glaston	Sweet Grass Irr. Dist.	Toe berm, relief wells	November 1995
Teton	Eureka	Teton Coop Canal Dist	Outlet pipe repair	March 1996

New DNRC Location

As most of you are aware, the Department of Natural Resources and Conservation is in the process of reorganizing. This means that in March the Dam Safety Program moved with the rest of the division to a new location in the New York Building on the Walking Mall in downtown Helena. Our new address is:



Montana Department of Natural Resources and Conservation
Water Resources Division
48 North Last Chance Gulch
P.O. Box 201601
Helena, MT 59620-1601

The New York Building is located 2 doors North of the Parrot Candy Confectionary. Park in any of the city parking lots.

We encourage you to contact the dam safety staff if you have any comments on this publication or if you would like to submit an article for future issues.

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(406) 444-6610

You can also send us E-mail at gfischer@flathead.dnrc.mt.gov.



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